

POWER, CABLE, THERMO-PLASTIC INSULATED, THERMO-PLASTIC SHEATHED

STATEMENT OF GENERAL SPECIFICATION TERMS AND CONDITIONS

NOTE: THIS SPECIFICATION AND ANY ACCOMPANYING SPECIFICATION OR BID CAN BE APPEALED.

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS **NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.**

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR THE APPEAL FEE AND APPEAL FILING INSTRUCTIONS.

APPEALS RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

NOTICE

AN APPEAL FEE (CHECK OR MONEY ORDER) WHICH IS 1% OF THE ESTIMATED DOLLAR AMOUNT OF THIS CONTRACT IS REQUIRED WITH A BID SPECIFICATION APPEAL. THIS FEE IS A PREREQUISITE FOR PURSUING THE APPEAL AND MUST ACCOMPANY THE APPEAL. THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHELD.

CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS OR ANY ACCOMPANYING SPECIFICATION AND BID, MAY BE DETERMINED AS A COUNTEROFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.

- I. **GENERAL:** It is the intent of this specification to describe the minimum requirements for power cable to be purchased by the City of Milwaukee for the DPW-Infrastructure Services-Traffic and Electrical Services Section. All parts not specifically mentioned, which are necessary or which are regularly furnished in order to provide this cable, shall be furnished by the successful bidder at the bid price and shall conform in strength, quality of material and workmanship to that usually provided by the engineering practice indicated in this specification.
- II. **WARRANTY:** The seller and/or the manufacturer warrants that the goods sold hereunder will be of mercantile quality, will conform to applicable specifications, drawings, designs, samples or descriptions, will be free from defects in materials and workmanship and will be fit for the particular purpose intended by the buyer.
 - A. The warranty shall be one year after date of installation not to exceed two years from date of delivery.

- B. Under this provision, the seller and/or manufacturer agrees to repair or replace at the option of the City, within a reasonable time, any part, feature or product found to be defective during the warranty period at no cost to the City for a period of one year.
- C. Vendor **should** provide complete warranty statement with their bid or within three (3) working days of receiving a request.

III. AWARD AUTHORITY:

The City Purchasing Director will be the sole judge of the quality and suitability of the equipment, materials and/or services in its determination of the successful bidder for all bids.

- IV. UNSUITABLE EQUIPMENT: Bids will not be considered for equipment or material which **have** previously failed to perform satisfactorily the functions described herein.

- V. SUBMISSION OF INFORMATION: Bidder shall state in space provided on bid, the manufacturer's name for the cable to be furnished. Failure to provide this information will result in bid rejection.

- VI. TECHNICAL REQUIREMENTS: Unless otherwise specified, the cable to be furnished shall comply with the manufacture and test requirements of the Insulated Cable Engineers Association (ICEA) Specification No. S-61-402, NEMA WC5, latest revision.

- A. CONDUCTORS: The conductors shall be of soft annealed copper wire in accordance with ASTM-B-3. Conductors No. 6 A.W.G. or larger shall be stranded. Conductors smaller than No. 6 A.W.G. shall be solid unless otherwise specified.

- B. INSULATION:

- 1. 600V: The insulation for cable rated 600V shall be thermo plastic in accordance with applicable Paragraphs 3.7, 3.8 or 3.9 of ICEA Pub. No. S-61-402, latest revision, and shall be a nominal 60 mils. thickness. Insulation shall meet the ANSI/ASTM D2220-74 (latest revision) accelerated water absorption requirements and -30°C (-22°F) cold bend test.
- 2. Nominal Thickness: The nominal insulation thickness around each individual conductor shall be not less than 90% of the thickness specified in the schedule.
- 3. Color Code: The insulation compound which covers each conductor making up a cable shall be color coded in conformance with the N.E.M.A. Color Code Standard, unless otherwise specified; however, printed color designations as in I.3.2 or I.3.3. will not be acceptable under this specification (see schedule)

- C. JACKETS:

- 1. Jacket: The jacket for all cables shall be moisture-resisting thermoplastic complying with the requirements for Paragraph 4.3.1. The jacket shall have a gravimetric method maximum 30 mg./sq. in. water absorption.
- 2. The minimum average jacket thickness shall be not less than 80% of the thickness specified in the schedule.

3. The moisture-resisting thermo-plastic jacket shall provide a tough, durable covering of uniform thickness in accordance with Paragraph 4.3. There shall be no fusing of insulation and jacket, so that the jacket may be easily separated from the core or insulation of individual conductors of multiple conductor cables.

D. ROUND CABLE:

1. All cables with conductor size #4 or larger, shall have non-hydroscopic fillers to provide a substantially round construction.

E. INSPECTION AND TESTS: Each length of the individual insulated conductor and completed cable shall comply with all requirements of I.C.E.A. Standards S-61-402. Sampling and Test Methods shall be in accordance with Part 6. A certified report of the tests made on the cable to show compliance with this specification may be required prior to shipment. If requested, a sample of the cable covered by the report shall also be submitted.

F. REELS:

1. Non-returnable reels: The cable shall be shipped on sturdy non-returnable reels with metal reinforcing plates on each side of the 3 inch diameter arbor hole, the cost of which shall be included in the unit prices bid, and shall be delivered in a vertical position so that the spindle hole is clear for lifting by means of a thru pipe.
2. Size: The reels shall not be more than 44 inches wide over the widest portion and not more than 60 inches in diameter, except in larger circular mill size cables where footage per reel cannot be supplied on this limited reel size. In such cases, larger reels will be acceptable in order to accommodate scheduled cable footage per reel.
3. Contents: Each length of cable as specified in the Invitation to Bid shall be placed on a separate reel holding the full length of such cable.
4. Protection of Ends: Before shipment, the ends of all wire and cable shall be carefully sealed to protect the insulation from moisture. Both ends of the wire and cable shall be accessible for testing, but shall be covered and protected from injury.
5. Marking: Each reel shall have the serial reel number, weight, length, item number, number of conductors in cable, name of the maker and purchaser's order or inspection number plainly and indelibly marked on a strong tag securely fastened to the wire and cable, and also stenciled on the outside of each head of the reel.
6. Construction: Reels shall be all wood construction. Plywood is unacceptable.
 - a. Wood shall be standard grade or better white pine.
 - b. Reel heads (flanges) shall be constructed out of a double layer of 1inch x 6 inch boards cross plied together.
 - c. Reel drum shall be constructed out of 5/8 inch thick x 1-1/4 inch wide boards which are molded to form a perfectly round drum.
 - d. Reel drum board shall be fastened to a wooden drumhead approximately 1 inch thick.

- e. Reel heads and drum shall be fastened together with a minimum of four (4) 1/2 inch steel rods, threaded on both ends with heavy duty nuts and recessed washers.
- G. LENGTHS: Ten percent of the reels of any one item may be shipped in random length of not less than 50% of the specified nominal length. This tolerance is permitted so that the cable manufacturers may avoid brazing together lengths of copper conductor. All conductors shall be free from brazes or splices.
- H. DELIVERY: All deliveries are to be made to the Traffic Engineering and Electrical Services Division at 1540 W. Canal Street, Milwaukee WI 53233. Delivery is accepted between the hours of 7:30 AM and 2:30 PM, Monday through Friday only, except Holidays. Cable reels shall be delivered on an open sided flatbed trailer to allow for fork lift access. A dock is not available at this location

POWER, CABLE SCHEDULE FOR SPECIFICATION #34-A-2

	3#2/1#8	3#4/1#8	3#6/1#8	3#8/1#8	2#8/1#8
Size of Conductor	#2 #8	#4 #8	#6 #8	#8 #8	#8 #8
Number of Conductors	3 1	3 1	3 1	3 1	2 1
Number of wires in conductor	7 or 19 1	7 or 19 1	7 1	1 1	1 1
Type of Insulation	3 PolyV none Chlor PolyE	3 PolyV none Chlor PolyE	3 PolyV none Chlor PolyE	3 PolyV none Chlor PolyE	2 PolyV none Chlor PolyE
Insulation Thickness	60 mils none	60 mils none	60 mils none	60 mils none	60 mils none
Insulation Voltage Rating	600 Volt none	600 Volt none	600 Volt none	600 Volt none	600 Volt none
Insulation Color Code	1-white none 1-black 1-red	1-white none 1-black 1-red	1-white none 1-black 1-red	1-white none 1-black 1-red	1-white none 1-black
Non-hydroscopic Fill	Required	Required	None	None	None
Moisture Resisting Sheath	POLYVINYL CHLORIDE OR EQUIVALENT				
Jacket Thickness	60 mills	60 mills	60 mills	60 mills	60 mills

All conductors shall be uncoated annealed soft copper.